1: Hanks E-3 (1953-1954) 1964 AO7 Central Thai AO7

[P. 1]

SUMMARY

On the assumption that a woman's physical and mental condition at childbirth is a product of her life-long daily habits and ideas as well as any particular injunctions set up to insure well-being in pregnancy and parturition, the cultural scene was searched to ascertain all possible relevancies.

The farmers of Bang Chan lived in a tropical, rice-growing terrain, annually flooded by the monsoon run-off. Food was plentiful even if cash was not. Except for better housing and equipment, and a greater enjoyment of market novelties, the rich lived much like the poor. The work in the fields by women paralleled that by men. Sharp physical demands, especially at planting and harvest, made them muscular.

At marriage the partners were fully mature and no woman was married against her wishes. The birth of a child was welcomed as leading to higher personal, social, and economic status.

The underlying concepts which explain why the food and other injunctions, both pre-natal and post-partum, and the ritual behavior took their particular forms, are explained.

The human body, harboring multiple immaterial souls, was seen as composed of earth, fire, water, and wind. Illness was caused by intrusive disruption of these four elements, or by soul loss. Food and medicines had properties which could be used to restore balance in the elements. The traditional curers or exorcisers had magical and herbal remedies obtained ritually from a teacher. Since Buddhist phrasings, often read from old texts in weekly sermons, molded Bang Chan's conception of life, the ultimate cause of health or illness was the presence or absence of merit. This determined one's kam (karma), the balance sheet of virtuous actions which one added to, or reduced by sinning throughout successive existences over eons of time.

The Buddhist cosmic view of individuals as separate autonomous beings brought it about that help was the only dynamic relationship possible between people. The bonds established by helping people, on this earth, especially in the tasks of feeding priests, lasted on into successive incarnations. Thus, meritorious people met again and might marry again. Families had continuity over time, and babies were born into the "right"

145

Table 4

Summary of Heights, Weights[1], Cristal Heights and Bicristal Diameters of 62 Males Over 7 Years Old, in the Random Sample of Village Households, Bang Chan, 1952-53

Age	No. of Persons	Height		Weight[1]			Cristal Height		Bicristal Diameter	
		Mean	Range	Mean	Median	Range	Mean	Range	Mean	Range
		cm.	cm.	kg.	kg.	kg.	cm.	cm.	cm.	cm.
8	1	112.0		17.5	17.5		64.0		18.5	
9	1	113.5		19.5	19.5		63.0		20.0	
10	3	121.7	120.5-122.5	23.4	23.5	22.25-24.5	69.7	68.5-70.5	20.0	19-21
11	2	129.5	129.0-130.0	26.3	26.3	25.0 -27.5	77.0	75.0-79.0	21.5	21-22
12	5	130.8	119.5-137.5	27.3	28.3	22.0 -31.0	77.3	69.5-84.5	20.8	18-23
13	2	145.8	140.5-151.0	35.8	35.8	33.25-38.25	86.3	82.0-90.5	25.0	25-25
14	2	149.0	145.0-153.0	38.0	38.0	34.0 -42.0	85.5	85.0-86.0	22.5	22-23
15-19	9	153.8	141.5-167.0	45.1	45.8	35.75-53.25	91.4	82.5-101.0	25.4	24-27
20-39	20	157.5	152.0-171.0	51.8	52.0	42.5 -58.5	91.4	86.5-99.0	26.5[2]	24-28
40-59	11	160.6	151.5-172.5	54.9	55.0	45.5- 61.0	93.1	86.0-101.5	27.7	24-29
60-66	6	158.0	150.5-170.5	53.4	49.8	43.0 -69.0	91.6	86.0-101.0	27.9[2]	25-30
Partial Total 20-66	37	158.6	150.5-172.5	53.0	52.0	42.5 -69.0	91.9	86.0-101.5	27.1	24-30

1. For children weighing 22.75 kg. or more weight of clothing was about 0.25 kg., clothing of smaller school children weighed less than this. Clothing of adults weighed about 0.25 kg.
2. Measurement was not obtained for 1 person in this group.

BANG CHAN 5: Hauck et al. D-5 (1952-1954) 1956 AO7 Central Thai AO7

361 Most of the dwellings in Bang Chan flanked the canals that stretched away from the temple area. All houses were in sight of one or more other houses, if not standing side by side. Here and there they formed small hamlets where kinsmen tended 351 to live in proximity. Around the houses were kitchen gardens and threshing floors, and behind them, the fields. Bananas grew 245 abundantly; pineapples, mangoes, and other fruits occasionally. The canals were full of water-vegetables, cultivated or wild, 241 while fish were plentiful. Water sources were the rain, kept 226 in large jars; artificial ponds dug near the houses and fed from ground water; and the canals. No wells existed. The large 312 tile roofs of the temple collected a good deal of rain-water which was available to anyone during the hot season when all water ran low.

General Nutritional Level

146 The population was physically well-formed with few physical [142] deformities evident. There was little obesity or emaciation. The daily diet (cf. Hauck, et al.:passim) consisted of large quantities of rice, with small amounts of fish, meat, vegetables, fruits, spices, and eggs. [292] Food at the not-infrequent festivals was rich in meat, eggs, and sugar. No milk was available except canned imports, and little was used. "Nevertheless, though caloric deficiency ('hollow hunger') was not prominent, over half of a sample of the population inspected medically had one or more signs of malnutrition. Even in a group chosen for research reasons for apparently good nutrition, about one in four had some such sign and in another group, selected for evidence of poor nutrition, two out of three persons had such."[2] The nutritional level in Bang Chan did not always correlate absolutely with economic level, for nutritionally one of the poorest families was found to be one of the best fed because the father did so much fishing and collecting of green canal vegetables. The [178] change-over, some decades ago, from home pounding of rice to [256] steam milling by most families had probably been a major factor in increasing nutritional deficiencies throughout the community.

---

2. Dr. H.M. Hauck, personal communication, 1959.

BANG CHAN

146 164 women of childbearing age as compared to older women, was in the incidence of skin changes. Certain of these, i.e. xerosis, loss of elasticity and atrophic skin, were observed, in the adult group, only among older women. In some cases at least these signs may have been associated with aging rather than nutritional deficiency, unless, indeed some of the common signs of aging prove to be due to long continued intakes which are suboptimal. Among the school children, however, these skin changes were clearly abnormal.

At the clinical examination, redness of the gums was noted in a few cases only among school children, most of whom were examined in November. The dentist, who examined the children in February, noted redness of gums in about one-fourth of them. This difference may reflect a difference in standards used by the physician and dentist, or the incidence of this sign may have increased between examinations.

Certain groups of signs tended to occur together. Thus the various skin signs: phrynoderma, xerosis and loss of elasticity were often associated. Of 23 cases with absence of knee jerk, 16 had absence of ankle jerk also, and the various changes in tongue and lips not only tended to occur together, but these were often associated with absence of knee jerk and/or ankle jerk. The signs of possible nutritive deficiency most commonly noted, namely changes in tongue, lips, skin and hair, and absence of knee and ankle jerk, might reasonably be associated with apparent deficiencies of riboflavin, vitamin A and thiamine in the diet (Sudsaneh, 1956).

146 142 Bowleggedness was observed in a larger proportion of adults than children, but according to our criteria, did not occur in either group to the extent that we had been led to expect from previous reports. Among the 198 school children in Bang Chan who were examined by a physician in 1948-49, 69, i.e., about 35%, were reported to have bowed legs, with 4 cases called "severe" (Sharp et al. 1953, p. 249). Among the 233 children in Bang Chan school whom we examined, 9 only, i.e., less than 4%, were considered bowlegged according to our criteria, and none of these cases was severe. Chutima (1939) stated that "Another condition prevalent in Siam and fundamentally due to improper diets since infancy is bow-leggedness. Only about 25% have normal lower limbs, the rest being bowlegged and many are knock-kneed . . . The percentage of extreme bow legs is about 20% while mild bow legs form about 55% of our school children." Since these other observers determined bowleggedness by casual inspection[1], some of the difference between the earlier observations and ours may be due to difference in criteria used. The children

---

1. Personal communication from Dr. Yong Chutima.

BANG CHAN

pictured as bowlegged in Chutima's report (1939) are, however, clearly so, and represent more extreme cases than we encountered among the children in Bang Chan in 1952-53. If the incidence of bowleggedness among children in Thailand is indeed decreasing, an investigation into possible causes of the change would be of interest.

To the nutrition specialist on the team, who was not Thai, the knee joints appeared to be large. Moreover, although the term "knock knees" was not included on the schedule, it was entered frequently by the physician under comments (Appendix B, Table 22).[A] Whether this condition is related to heredity, nutritional status, or to some other environmental influence such as the life-time habit of squatting on the heels, is not known.

The physician's estimate of general appearance and vitality were recorded early in the examination, before he sought for specific signs. About 80% of all persons examined were rated as "good," and less than 1% as "poor." About half of all persons rated as "good" in general appearance and vitality were without clinical signs, as compared to about 30% of those rated "fair." Of persons with 3 or more possible signs of malnutrition, however, about 2/3 were rated "good" (Appendix B, Tables 23 and 24).[B] As has been observed frequently, such a general appraisal is not correlated with the presence or absence of clinical signs possibly associated with malnutrition. Clearly, in Bang Chan, there is little or no malnutrition of the sort that causes marked apathy.

In summary, a variety of possible signs of malnutrition were noted both in the school children and the persons in the random sample of village households. More than half of the total number examined had one or more signs possibly due to malnutrition, but the only clearly defined deficiency disease encountered was one case of beri beri[1] in a 49-year old man.

Reproductive Function in Females

Menstrual History. - Information concerning menstrual history was obtained from girls and women in the random sample of village households, and from mothers of the infants and small children whose growth and food patterns were studied.

Most of the women from whom information on age at menarche was obtained were under 40 years of age. A few could

1. History of beriberi among nursing mothers and their infants was obtained in several instances, and cases of beriberi, in both sexes, were seen among persons not included in the population samples which were examined.

[A] [see p. 71-Am.] [B] [see pp. 72, 73-Analyst]

125 puncture, although a few adults and two school age children re-
128 fused. No attempt was made to determine hemoglobin for most children under school age.

12. Stool examination. Each school child was furnished with an appropriate container labelled with his name. Pupils were asked to bring the container, with stool sample, to the teacher. Specimens were examined at the Pathology Department of Chulalongkorn Hospital.

13. Hair.

a. Dry and staring. Hair which has lost its normal sleekness and luster, and is dry and brittle.

b. Diminution or loss of pigment. In dark haired [142] people, an auburn tinge is evident in mild cases. (Note: None of the cases seen in Bang Chan had progressed beyond this to "ginger" or tow-colored hair).

14. Eyes.

a. Photophobia, when present, was always recorded. If obviously due to some non-nutritional eye disease, this fact was recorded under comments.

b. Lachrymation, which is often associated with photophobia, was recorded when elicited by brief eye examination.

c. Blepharitis. Inflammation of the muco-cutaneous junction of the eyelid, with or without scaling and crusting or loss of eyelashes. If blepharitis was obviously associated with some non-nutritional eye disease, such as trachoma, this fact was recorded under comments.

d. Xerophthalmia. The conjunctiva is abnormally dry and appears thickened, yellowish and opaque.

e. Excess conjunctival tissue. Thickening of the bulbar conjunctiva, which appears opaque and yellowish. The tissue is moist. When the subject moves the eye from side to side, a thickened conjunctiva is thrown into a moving ripple of folds.

f. Bitot's spots. An extreme form of thickening of the epithelium of the bulbar conjunctiva. The spots resemble patches of chalk paste which have been striated with a pin.

g. Corneal vascularization (gross). Loops of newly-formed capillaries appear near the corneal margin, and extend onto the cornea. Since a slit lamp, which is necessary for observation of early stages, was not used, gross changes only could be noted.